

WHAT IS CLAIMED IS:

1. A light emitting device of a II-VI group compound semiconductor formed on a compound semiconductor substrate and having an active layer between an n-type cladding layer and a p-type cladding layer, comprising  
a semiconductor barrier layer having a band gap larger than a band gap of said p-type cladding layer, provided between said active layer and said p-type cladding layer.
- 5 2. The semiconductor light emitting device according to claim 1, wherein said light emitting device of the II-VI group compound is a ZnSe based light emitting device;  
said n-type cladding layer is an n-type  $\text{Zn}_{1-x}\text{Mg}_x\text{S}_y\text{Se}_{1-y}$  ( $0 < x < 1$ ,  $0 < y < 1$ ) layer; and  
5 said p-type cladding layer is a p-type  $\text{Zn}_{1-x}\text{Mg}_x\text{S}_y\text{Se}_{1-y}$  ( $0 < x < 1$ ,  $0 < y < 1$ ) layer.
3. The semiconductor light emitting device according to claim 1, wherein magnitude of the band gap of said barrier layer is larger by 0.025 eV to 0.5 eV than the band gap of said p-type cladding layer.
4. The semiconductor light emitting device according to claim 1, wherein in the band gap of said barrier layer, energy of valence band is approximately the same as that of said p-type cladding layer, and energy of conductive band is larger than that of said p-type cladding layer.
5. The semiconductor light emitting device according to claim 1, wherein said barrier layer is of a II-VI group compound semiconductor containing Be.
6. The semiconductor light emitting device according to claim 5, wherein

said barrier layer is of  $\text{Zn}_{1-x-y}\text{Mg}_x\text{Be}_y\text{Se}$  ( $0 \leq x + y \leq 1$ ,  $0 < x$ ,  $0 < y$ ).

7. The semiconductor light emitting device according to claim 1, wherein said barrier layer is of  $\text{Zn}_{1-x}\text{Mg}_x\text{S}_y\text{Se}_{1-y}$ .

8. The semiconductor light emitting device according to claim 1, comprising a semiconductor trap layer having a band gap smaller than a band gap of said p-type cladding layer, provided between said barrier layer and said p-type cladding layer.

9. The semiconductor light emitting device according to claim 8, having a multi-stacked structure in which a plurality of double-layer-structure of said barrier layer and said trap layer are stacked.

10. The semiconductor light emitting device according to claim 8, wherein said trap layer is of  $\text{ZnS}_x\text{Se}_{1-x}$  ( $0 \leq x \leq 0.1$ ).

11. The semiconductor light emitting device according to claim 1, wherein said p-type cladding layer is formed of  $(\text{Zn}_{1-x}\text{Cd}_x\text{S})_{1-z}(\text{MgS}_{1-y}\text{Se}_y)_z$  (where  $x$ ,  $y$ ,  $z$  satisfy  $0 < x \leq 1$ ,  $0 \leq y \leq 1$ ,  $0 \leq z < 1$ ).

12. The semiconductor light emitting device according to claim 1, wherein thickness of said barrier layer is at least 5 nm and at most thickness of said active layer.

13. The semiconductor light emitting device according to claim 1, wherein an n-type ZnSe single crystal substrate is used as said compound semiconductor substrate.

14. The semiconductor light emitting device according to claim 1, wherein an n-type GaAs single crystal substrate is used as said compound semiconductor substrate.

15. The semiconductor light emitting device according to claim 1, wherein in a stacked structure including said compound semiconductor substrate constituting said ZnSe based light emitting device, deviation between a peak of X-ray diffraction of a plane orientation used as an index of distortion from said substrate and a peak of X-ray diffraction of said plane orientation from said stacked structure is at most 1000 seconds.

16. A semiconductor light emitting device formed on a compound semiconductor substrate, having an active layer sandwiched between two cladding layers, wherein one of said two cladding layers is a p-type semiconductor to which a p-type impurity is introduced; and the other cladding layer is an undoped semiconductor.

17. The semiconductor light emitting device according to claim 16, wherein concentration of residual impurity in said undoped semiconductor is smaller than  $1 \times 10^{16}/\text{cm}^3$ .

18. The semiconductor light emitting device according to claim 16, wherein between said active layer and said cladding layer of p-type semiconductor (p-type cladding layer), a barrier layer having a band gap (forbidden band) larger than that of said p-type cladding layer is positioned.

19. The semiconductor light emitting device according to claim 18, wherein

said barrier layer is formed of  $\text{Zn}_{1-x-y}\text{Mg}_x\text{Be}_y\text{Se}$  ( $0 \leq x + y \leq 1$ ,  $0 < x$ ,  $0 < y$ ).

20 The semiconductor light emitting device according to claim 16, wherein said semiconductor is a II-VI group compound semiconductor.

21. The semiconductor light emitting device according to claim 20, wherein said semiconductor is a ZnSe based compound semiconductor.

22. The semiconductor light emitting device according to claim 16, wherein said two cladding layers are formed of  $\text{Zn}_{1-x}\text{Mg}_x\text{S}_y\text{Se}_{1-y}$ .